ABSTRACT

A vehicle safety system uses sensors mounted between a seat belt frame and a seat belt spool to detect protraction of seat belt webbing after the seat belt spool has been locked by an inertial switch or the like. The vehicle safety system gathers information from vehicle mounted crash sensors. If the vehicle safety system determines that a crash is taking place, but does not receive an output from the sensor mounted between the seat belt frame and the seat belt spool indicating seat belt webbing is being protracted, the system deploys other safety apparatus based on the assumption that the occupant of a particular seat is not properly restrained by one or more seat belts. For example seat belt use information can be used to vary the level of airbag deployment in a variable deployment airbag. An alternative embodiment detects motion of a linear energy-absorbing mechanism.